

ABSTRACT OF THE DISCLOSURE

The present invention is directed to a method for clamping a wafer to an electrostatic chuck using a single-phase square wave AC clamping voltage. The method comprises determining a single-phase square wave clamping voltage for the electrostatic chuck, wherein the determination is based, at least in part, on an inertial response time of the wafer. The wafer is placed on the electrostatic chuck, wherein a gap between the electrostatic chuck and the wafer is defined. The determined single-phase square wave clamping voltage is then applied, wherein the wafer is generally clamped to the electrostatic chuck within a predetermined distance, while an amount of electrostatic charge is generally not allowed to accumulate, thereby enabling a fast de-clamping of the wafer.

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